



## **Precipitation trends in Eastern Iberian Peninsula during the second half of 20th century.**

J.C. González-Hidalgo (1), M. de Luis (1), P. Stepanek (2), S.M. Vicente-Serrano (3).

(1) Departamento de Geografía, Universidad de Zaragoza, Zaragoza, Spain, (2) Czech Hydrometeorological Institute, Brno, Czech Republic, (3) Instituto Pirenaico de Ecología, CSIC, Zaragoza, Spain.

We have analysed precipitation trends at seasonal and annual scale in Eastern Iberian Peninsula (circa 135.000 km<sup>2</sup>) by using the most dense database produced until present in Spain. Database was developed from the total amount of data (more than 3800 observatories) stored at Spanish National Meteorological Agency (Instituto Nacional de Meteorología).

The original amount of data (more than 1.10<sup>6</sup> data month) were checked for quality to discard suspicious data and control inhomogeneity. To do this, all the series were compared with reference series. Each reference series were computed after selection of nearest neighbours (less 50 km distance) with a minimum overlap period of 10 years and only with series with all months correlated >0.5. Both analyses were done by iteration in which after any modification of data a new reference series were calculated. A total amount of 11 iterations were performed (i.e. reference series). Finally, reconstruction was done by using a new set of references series. More than 85 % of final data correspond with original data or data coming from neighbours at less than 10 km. In the 1950-2000 period, data base consist of more than 900 complete monthly precipitation series (mean overall density 1 obs. / 150-200 km<sup>2</sup>).

Seasonal trend analyses show a high variability at temporal and spatial scale. During winter season an increase in precipitation occurred in coastland areas. Contrary, in the most inland areas trends resulted in decreasing of precipitation. More spatial homogeneity seems to be spring precipitation trends, and a general decrease can be observed. During summer a decrease in precipitation occurred in northern area, while increase in southern ones. Finally, precipitation trends during autumn show the high spa-

tial variability, and the most noticeable is the increase of precipitation in the Pyrenees Mountain areas. We discuss these observed results in the context of climate change scenarios and possible ecological and socio economical implications.